

## Ferns of the New Jersey Pine Barrens

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At Quaker Bridge, New Jersey, there are river banks, bogs and upland where grow a most varied pinebarren flora. Under pines are sheep laurel and clethra. There are white cedars, magnolias, and viburnums. There are rushes and cotton grass. There are cranberries and teaberries. There are orchids, lycopodiums, drosera, sphagnum, and pitcher plants. We were there in 1937 in late September; as I sat in the car looking at the tawny patches of cinnamon fern and the sienna colored cosmopolitan bracken whose stout stipes still held aloft the dried fronds, I remembered that I had often seen in books, not botanical, the expression "ferns and bracken" and the rhyme from Scott:

"The heath this night must be my bed,  
The bracken curtain for my head."

*Pteris latiuscula* is one of the commonest of the few ferns found in the Pines for that land does not offer situations loved by ferns. Bracken adapts itself to sand and bog. Its long rootstocks may grow ten to twenty feet in a season, sending up numerous fronds. There is a variety, *P. latiuscula pseudocaudata*, that has the terminal pinnules elongated in various patterns.

With us that day in September was a young woman just beginning to study ferns. She first brought me a frond of *Woodwardia*. Both *W. virginica* (*Anchistea virginica*) and *W. areolata* (*Lorinseria areolata*) are fairly abundant. After cedar swamps have been cut or burned over *W. virginica* with its creeping rootstocks appears plentifully among the alders and magnolias that follow *Typha latifolia* and wool grass which spring up at first. Then the young cedars start up again.

The young lady next brought me a frond of Royal Fern which recalled *O. regalis* as seen growing luxuriantly at Miami, Florida. It grows in New Jersey in the shallows beside streams. When next she came to the car she was tattered and torn having crept under cedars and crossed a bog to get *Schizaea*. She is keen on conservation and only allowed herself to gather two specimens. I took mine home and planted it in a small glass globe with moss and partridge berries. After some weeks it is still alive and interesting. The sterile fronds are very curly and green and the fertile ones still wave their tiny flags.

In July 1818 Dr. John Torrey and William Cooper reached Quaker Bridge after driving through a "labyrinth" of little roads. In a letter Dr. Torrey says, "we found a considerable number of plants that were new to us, indeed, there were few plants but what we found here." Then he tells about finding *Schizaea* which pleased them more than any other plant they found. That was more than a hundred years ago and except for the proximity of deer hunters' camps, Quaker Bridge is still a happy hunting ground for those of us who love the Pines. Of course the old hostelry where they stayed is gone.

I have found Curly Grass at Warren Grove at the edge of the Plains in a hollow where rainwater collects. It was in the region where that other strange plant, *Corema Conradii*, grows. People always want to tell about finding Curly Grass. One autumn a good botanist and I took a train to Chatsworth, New Jersey. Upon arrival we back-tracked about a half mile, so eager to find *Schizaea* that we passed *Gentiana Porphyrio* without stopping! Reaching the designated place we searched on our hands and knees under cedars for an hour or so without luck; then gathered some cranberries which had escaped from a bog, ate our lunch and from a pile of railroad ties surveyed the landscape. Crossing the railroad we found a patch of the pert little fern, enough to justify taking a few specimens. The fertile frond is stiff and brown having at the end four or five pairs of pinnae folded close together over the spore cases on their inner surfaces. The locality was open and comparatively dry. On returning to the railroad station the rare lovely gentian had disappeared but we had found *Schizaea pusilla!*

Scattered through the Pines is *Thelypteris Thelypteris* but it is not plentiful. *Thelypteris simulata* is more often seen. This fern is considered to have boreal affinities. It was named in Massachusetts. Its stalk and pinnae are hairy, sori large. It grows in low woods and thickets where sphagnum is abundant. Creeping rootstocks send up fronds in early summer. The fertile fronds come in late July. Fronds are tender and hurt by early frosts. Mr. Witmer Stone lists *Asplenium felix-foemina* (*Athyrium asplenioides*) and *Phegopteris Dryopteris* as occurring at Calico in the Pine Barrens. The Christmas fern is rarely found in the Pines but has been seen at Cape May. *Asplenium platyneuron* occurs in suitable locations like Speedwell and Dover Forge.

There is no well-defined line of demarcation between the Pine Barrens and the arable land, for peninsulas of pines jut into surrounding territory and there are also islands of pine barren formation found here and there. We natives of New Jersey whose grandfathers and, yes, grandmothers, did not feel equipped for life unless they owned some woodlots in the pines or a cranberry bog do not bother to say "Pine Barrens." They are "The Pines" and we mean that area intersected by streams and lakes. To us the barren land is "The Plains," a fine view of which can be had from the fire tower at Oswego Lake.

*Lygodium palmatum* although found deep in the Pines is more often seen on the so-called peninsulas. Near New Lisbon is a lane leading to the pineland. By a stream are drainage ditches three or four feet deep on either side, on the banks of which are climbing ferns (*Lygodium palmatum*), quantities of them forming lacy mats so dense that other plants were smothered and only a few stalks of aster and goldenrod had pushed through to offer stems for the ferns to climb. Lacking support for the most part, the ferns were prostrate and tangled and twisted around each other. The very prolific fertile ends fell over and added themselves to the fern cushions on the banks of the ditches. The cord-like root stalks were matted and creeping up the sides and near the surfaces of the ditches. On the 1st day of October, in deference to the season, the fertile fronds were slightly yellow and reminded one of dodder as they twisted their threads around the stalks. The sporangia were immature. The sterile fronds are evergreen. The stalk is light brown or yellowish, two forked, each fork bearing roundish palmately lobed pinnae. The fronds do not climb until they are a foot long, the shorter ones spreading over the ground. Sometimes the fertile pinnae are in the middle of the stalk with sterile above and below. Those above are much smaller. Sometimes a sterile pinnule has one or more lobes changed to fertile and vice versa.

It is a pleasant surprise to find a great quantity of a fern heretofore seen growing scantily. The first locality I knew for *Lygodium* was Medford where each fern grew in solitary state climbing neatly and tidily its own sweet gum sapling. I thought they grew that way. One finds no more ferns at that place. The marsh was filled and drained as so many other such places have been to the destruction of the vegetation.

Such is the list of ferns for the Pine Barrens. It is not arbitrary for ferns and plants from the outside creep in and the floras mix. It would be justifiable to make it longer by adding two *Botrychiums* and four *Lycopodiums*, the latter being frequently seen.

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